University of Waterloo
Midterm Examination

AFM 371/2 Winter 2011
4:30-6:00 Tuesday, March 1

Student number: ____________________

Student name: ANONYMOUS

Instructor: Dr. Hongping Tan

Duration: 1.5 hours

This exam has __12___ pages including this page.

Important Information:

1. Answers must be legible. If I cannot read it, I cannot mark it.
2. In cases where returns/rates are to be calculated, if you are using percentage points round off to two decimal places (12.24%), and if you are not using percentage points, round off to four decimal places (0.1224). In all other cases, round off to two decimal places.
3. Use the back of the page if there is not enough space, and add "See the back please".
4. Show your calculation steps if possible to get partial credit. If there is any ambiguity in the question, **state your assumptions explicitly**.

MARKING SCHEME:

Section	Question	Score
I. Multiple Choice: 24%	24 (1 point each)	
II True or False: 6%	6 (1 point each)	
III. Essay questions: 40%	1 (8 points)	
	2 (8 points)	
	3 (12 points)	
	4 (12 points)	
IV. Calculation: 30%	1 (9 points)	
	2 (9 points)	
	3 (12 points)	
Total	100 points	

I. Multiple choice questions: Circle only one answer that is the best (1 point for each question)

1. Which of the following regarding rights offerings is false?
   A. Pure rights offerings are typically cheaper than other types of offers.
   B. Rights offerings protect the proportionate interest of existing stockholders.
   C. Rights offerings protect against underpricing.
   D. Shareholders that choose not to participate in the offering cannot sell their rights to others.
   E. The price drop in a rights offering can be greater than in a cash offering.

2. Which of the following correctly describes the sequence of events in a new issue?
   A. Distribution of "red herring"; approval of the board of directors; distribution of prospectus; sale of securities
   B. Approval of the board of directors; distribution of prospectus; distribution of a "red herring"; sale of securities
   C. Distribution of "red herring"; distribution of prospectus; approval of the board of directors; sale of securities
   D. Approval of the board of directors; distribution of a "red herring"; distribution of prospectus; sale of securities
   E. Approval of the board of directors; distribution of prospectus; sale of securities; distribution of a "red herring"

3. The use of personal borrowing to change the overall amount of financial leverage to which the individual is exposed is called:
   A. Homemade leverage.
   B. Dividend recapture.
   C. The weighted average cost of capital.
   D. Private debt placement.
   E. A privileged subscription offer.

4. The cost of equity capital, based on M&M Proposition II, can be defined as:
   A. $R_E = R_D + (R_A - R_D)(D/E)$.
   B. $R_E = R_A + (R_A - R_D)(E/D)$.
   C. $R_E = R_A + (R_A - R_D)(D/E)$.
   D. $R_E = R_A + (R_D - R_A)(E/D)$.
   E. $R_E = R_D - (R_D - R_A)(D/E)$.

5. Which of the following statements regarding leverage is false?
   A. The ultimate effect of leverage depends on the firm's EBIT.
   B. If things go poorly for the firm, increased leverage provides greater returns to shareholders (as measured by ROE and EPS).
   C. As a firm levers up, shareholders are exposed to greater risk.
   D. The benefits of leverage will not be as great in a firm with substantial accumulated losses or other types of tax shields compared to a firm without many tax shields.
   E. Beyond a certain point, the costs of financial distress outweigh the benefits of leverage.

6. Firm A has a debt-equity ratio of .5. Firm B has a debt-equity ratio of .8. All other features of these firms are identical. The return on equity of Firm A is:
   A. Equally as volatile as the return of equity of Firm B.

B. Less volatile than the return on equity of Firm B.
C. More volatile than the return on equity of Firm B.
D. Unaffected by the debt-equity ratio.

7. Shareholders generally prefer that a distressed firm:
A. Undergo reorganization under the Bankruptcy and Insolvency Act because the common stock generally recoups its value.
B. Undergo liquidation under the Bankruptcy and Insolvency Act because they have first priority over the firm's assets.
C. Undergo reconstitution under the Bankruptcy and Insolvency Act because that option usually minimizes shareholder loss.
D. Not declare bankruptcy because they are generally required to convert their shares into debt securities.
E. Not declare bankruptcy since the common shares are often rendered worthless.

8. An increase in the firm's number of shares outstanding without any change in owners' equity is called a ________________.
A. special dividend
B. stock split
C. share repurchase
D. tender offer
E. liquidating dividend

9. The clientele effect states that stocks:
A. Are divided into groups based on their overall level of risk.
B. Are sold to various groups depending upon their industry.
C. Conform to various risk elements based on their volatility.
D. Can be divided into groups based upon their sales to individuals versus institutions.
E. Attract certain investor groups based on the dividend yield and the tax effects.

10. Which of the following is the correct chronology of a dividend payment?
A. Declaration date, Date of record, Ex-dividend date, Date of payment
B. Declaration date, Ex-dividend date, Date of record, Date of payment
C. Declaration date, Date of record, Date of payment, Ex-dividend date
D. Declaration date, Date of payment, Date of record, Ex-dividend date
E. Declaration date, Ex-dividend date, Date of payment, Date of record

11. If a firm has excess cash and management believes the firm's shares are currently undervalued by market participants, the firm is a likely candidate for a _________.
A. liquidating dividend
B. stock dividend
C. regular cash dividend
D. stock repurchase
E. stock split

12. Which of the following will increase earnings per share?
I. Stock dividend
II. Stock split
III. Reverse stock split

IV. Share repurchase
A. I and II only
B. I and III only
C. II and IV only
D. III and IV only
E. I, III, and IV only

13. Your key supplier has decided to change the terms of your credit arrangement from net 45 to net 30. This action will _____ your accounts payable period and _____ your cash cycle.
A. increase; increase
B. increase; decrease
C. decrease; increase
D. decrease; decrease
E. decrease; not change

14. The operating cycle must lengthen when the:
A. accounts receivable turnover rate increases.
B. accounts payable period increases.
C. cash cycle decreases.
D. inventory turnover rate decreases.
E. accounts receivable period decreases.

15. Evergreen Brothers Hardware offers credit to contractors. As a reward for years of loyalty, the brothers have decided to extend the length of the credit period for their top ten customers. This extension will _____ the accounts receivable period, _____ the operating cycle, and _____ the cash cycle.
A. increase; increase; increase
B. increase; increase; not effect
C. increase; decrease; not effect
D. decrease; decrease; decrease
E. decrease; increase; increase

16. Which of the following is a source of cash, all else the same?
A. Retiring commercial paper.
B. Reducing accounts payable.
C. Factoring accounts receivable.
D. Selling inventory on credit.
E. Purchasing goods from a supplier.

17. The Pearson Co. currently has a 25 day cash cycle. Assume the firm changes its operations such that it increases its receivables period by 3 days, decreases its inventory period by 2 days, and decreases its payables period by 5 days. What will the length of the cash cycle be after these changes?
A. 19 days
B. 23 days
C. 29 days
D. 31 days
E. 35 days

Cash cycle = 25 + 3 - 2 + 5 = 31 days

18. Joe's Merchandise had a beginning accounts payable balance of $61,800 and an ending accounts payable balance of $67,400. Sales for the period were $580,000 and costs of goods sold were $436,000. What is the payables turnover rate?
A. 6.47 times
B. 6.75 times
C. 7.02 times
D. 8.60 times
E. 8.98 times

Payables turnover = $436,000 / [($61,800 + $67,400) / 2)] = 6.75 times

19. Your average customer is located 5 mailing days away from your firm. You have determined that on average it is taking your firm 2 days to process payments received from customers. In addition, it takes 3 days for your funds to be available for use once you have made your bank deposit. What is your firm's collection time?
A. 1 day
B. 4 days
C. 6 days
D. 7 days
E. 10 days

Collection time = 5 + 2 + 3 = 10 days

20. The movement of money from multiple bank accounts into one main bank account for a firm is called:
A. Lockboxing.
B. Electronic disbursing.
C. Cash concentration.
D. Availability enhancement.
E. Over-the-counter collection.

21. Which one of the following statements concerning bankruptcy is correct?
A. A firm is considered bankrupt when it becomes delinquent on a loan payment.
B. The administrative expenses of a bankruptcy are classified as indirect bankruptcy costs.
C. Bankruptcy costs may offset the tax-related gains from leverage.
D. The higher cost of capital which a firm pays in order to avoid excessive debt is considered a direct cost of bankruptcy.
E. Bankruptcy is a relatively inexpensive process.

22. Which of the following formulas correctly describes the cost of equity capital?
A. $R_E = D_0/P_0 + g$
B. $R_E = D_1 + g/P_0$
C. $R_E = D_1/P_0 + g$
D. $R_E = R_f - \beta \times (R_f - R_m)$
E. $R_E = R_f + \beta \times (R_m + R_f)$

23. Advertisements in, for example, *The National Post* announcing a corporation's public offering of securities, along with a list of the investment banks handling the offering, are called:
A. Red herrings.
B. Tombstones.
C. Green Shoes.
D. Registration statements.
E. Letters of comment.

24. The Green Hornet wants to raise $25 million in a rights offering. The stock price is $48 a share, the subscription price is $40 a share, and there are 4 million shares outstanding. What is the value of one right?
A. $0.97
B. $1.03
C. $1.08
D. $1.11
E. $1.33

II. (6 points) True or false statement: Put a T for true and F for false in the parentheses.

1. ( ) According to the textbook, the market value of a firm's outstanding shares are most likely to fall upon the announcement of a new equity offering.

True

2. ( ) All else equal, the greater the subscription price of shares in a rights offering, the smaller the number of rights needed to buy one new share.
FALSE

3. ( ) If the clientele effect holds, then financial managers cannot increase the demand (and therefore the market value) of their firms' shares by increasing the rate of dividend payout.
TRUE

4. ( ) If the static theory of capital structure is true, then the optimal level of debt for a given firm increases as its marginal tax rate increases and decreases as the costs of financial distress increase.
TRUE

5. ( ) Secured financing on a short-term basis that involves either the assignment or the factoring of receivables is called accounts receivable financing.
TRUE

6. ( ) The opportunity cost of holding cash is inversely related to the level of market interest rates.
FALSE

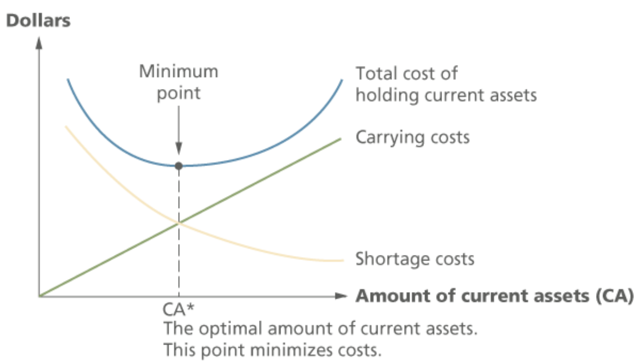
III. Essay questions

1. **(8 points)** What are the differences between a flexible short-term financing policy and a restrictive one?

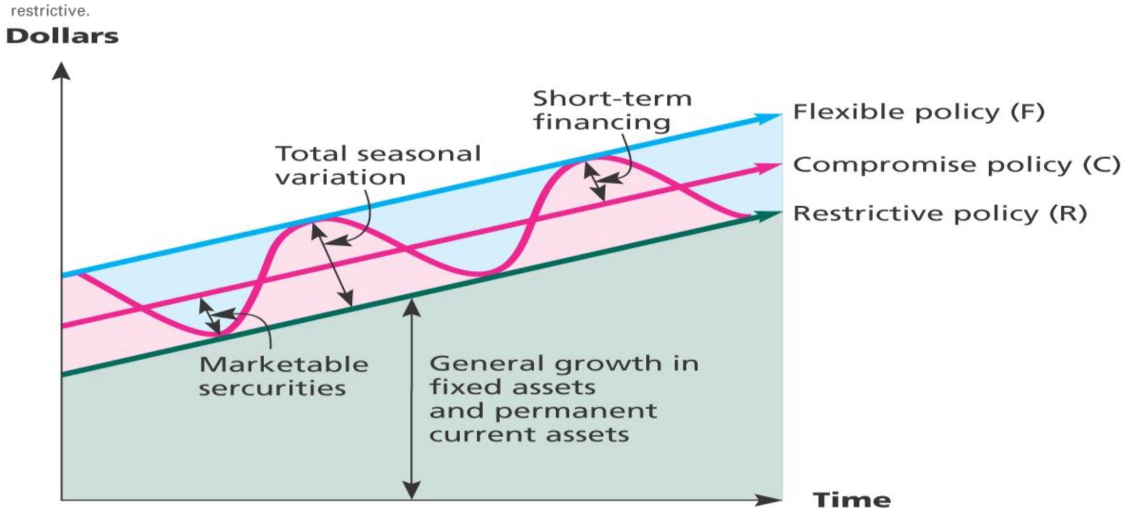
- Size of investments in current assets
  - Flexible policy – maintain a high ratio of current assets to sales
  - Restrictive policy – maintain a low ratio of current assets to sales
- Financing of current assets
  - Flexible policy – less short-term debt and more long-term debt
  - Restrictive policy – more short-term debt and less long-term debt

Figure 18.2 – Carrying Costs and Storage Costs

Short-term financial policy: the optimal investment in current assets.



Carrying costs increase with the level of investment in current assets. They include the costs of maintaining economic value and opportunity costs. Shortage costs decrease with increases in the level of investment in current assets. They include trading costs and the costs related to being short of the current asset (for example, being short of cash). The firm's policy can be characterized as flexible or restrictive.



With a compromise policy, the firm keeps a reserve of liquidity that it uses to initially finance seasonal variations in current asset needs. Short-term borrowing is used when the reserve is exhausted.

2. **(8 points)** How do you expect stock prices to respond around the Ex-dividend dates?

- In a perfect world, the stock price will fall by the amount of the dividend on the ex-dividend date.
- Taxes complicate things a bit: the price drop is less than the dividend and occurs within the first few minutes of the ex-date

Price change, Dividends, and Tax rates: Investor Perspective

$$\Rightarrow \quad \frac{P_b - P_a}{D} = \frac{1 - t_d}{1 - t_g}$$

(1) If $t_d = t_g$ then $P_b - P_a = D$
(2) If $t_d > t_g$ then $P_b - P_a < D$: price fall smaller than D.
(3) If $t_d < t_g$ then $P_b - P_a > D$: price fall greater than D.

- If one's trading horizon is short, then tax advantage comparison:
  - indifferent if there is no tax differences between dividends and capital gains
  - Prefer firm to pay dividend if dividend tax rate is lower than capital gains rate, and vice versa.

Does Dividend Policy Matter? 17.2

- Dividends matter – the value of the stock is based on the present value of expected future dividends
- Dividend policy may not matter
  - Dividend policy is the decision to pay dividends versus retaining funds to reinvest in the firm
  - In theory, if the firm reinvests capital now, it will grow and can pay higher dividends in the future

17-6

- Clientele effect
- Dividend arbitrage

3. **(10 points)** What is IPO underpricing ? What are the arguments for it?

The key arguments in favor of IPO underpricing include:
(1) the risky nature of IPO offerings.
(2) oversubscription and under allocation of the more favorable IPO offerings.
(3) the desire to keep IPO investors happy.
(4) compensation to large institutional investors for their price evaluation of the offering.

Why are IPOs underpriced?

- Information asymmetry
  - Winner's curse

    Informed → "Good issues" → underpricing

    Uninformed investors → Every issue → ?
- Underwriters' incentives and risk aversion
  - minimize risk of issue failing
  - avoid potential lawsuits if shares subsequently do poorly
- Quality signal
  - To issue seasoned equity later at a higher price
- Underwriter
  - Key investors influence the offering price
  - Market power of underwriter

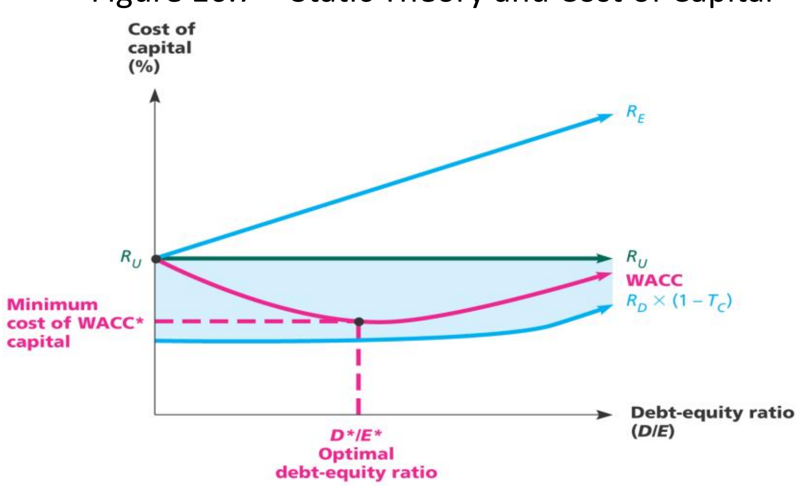
4. **(10 points)** Use a graph of cost of capital to illustrate the idea of static trade-off theory. Briefly explain each line/curve that you draw.

Definition of static trade-off theory

Use a graph of cost of capital

Explanation for each line/curve, especially for why WACC takes a U shaped curve.

Figure 16.7 – Static Theory and Cost of Capital



According to the static theory, the WACC falls initially because of the tax advantage of debt. Beyond the point D^*/E^*, it begins to rise because of financial distress costs. 16-36

IV. Calculations (Show the steps to get partial credit).

1. **(8 points)** Considering the following financial information for the Fun Expert Corp. Calculate the operating cycle for the company.

Item	Beginning		Ending
Inventory	$9,780		$11,380
Accounts receivable	4,108		4,938
Accounts payable	7,636		7,927
Credit sales		$89,804	
Cost of goods sold		56,384	

Inventory turnover = COGS/Average inventory
Inventory turnover = $56,384/{[$9,780 + 11,380]/2}
Inventory turnover = 5.3293 times
Inventory period = 365 days/Inventory turnover
Inventory period = 365 days/5.3293
Inventory period = 68.49 days
And the receivables turnover and receivables period are:
Receivables turnover = Credit sales/Average receivables
Receivables turnover = $89,804/{[$4,108 + 4,938]/2}
Receivables turnover = 19.8550 times
Receivables period = 365 days/Receivables turnover
Receivables period = 365 days/19.8550
Receivables period = 18.38 days
So, the operating cycle is:
Operating cycle = 68.49 days + 18.38 days
Operating cycle = 86.87 days

2. **(8 points)** Invention, Inc. receives an average of 250 checks a day. The average amount per check is $450. The firm is considering a lockbox system which it anticipates will reduce the average collection time by 3 days. The bank charges $.15 a check for this service. The daily interest rate on Treasury bills is .01 percent. What is the net present value of this lockbox arrangement? What is your recommendation to the management?

   Net present value = [250 × $450 × 3] - [(250 × $.15) / .0001] = $337,500 - $375,000 = -$37,500

3. (**12 points**) Thompson & Jones has earnings before interest and taxes of $149,000. Both the book and the market value of debt is $265,000. The unlevered cost of equity is 13.5 percent while the pre-tax cost of debt is 9 percent. The tax rate is 34 percent. What is Thompson & Jones' weighted average cost of capital?

V_U = [$149,000 × (1 - .34)] / .135 = $728,444.44
V_L = $728,444.44 + (.34 × $265k) = $818,544.44
V_E = V_L - V_D = $818,544.44 - $265k = $553,544.44
R_E = .135 + (.135 - .09) × ($265k / $553,544.44) × (1 - .34) = .149218
WACC = [($553,544.44 / $818,544.44) × .149218] + [($265k / $818,544.44) × .09 × (1 - .34)] = 12.01 %